Material Safety Data Sheet
Ethylene Glycol

ACC# 09400

Section 1 - Chemical Product and Company Identification

MSDS Name: Ethylene Glycol
Catalog Numbers: AC410010040, AC410010200, S80005, S80005-1, S80005-2, BP230 1, BP230 4, BP230-1, BP230-4, BP2301, BP2304, E177 20, E177 4, E177-20, E177-4, E17720, E1774, E178 1, E178 200, E178 4, E178 500, E178-1, E178-200, E178-4, E178-500, E1781, E178200, E178200001, E1784, E1784LOT003, E178500, E178J4, S79007, S800051, S800052, ZZE1785C15
Synonyms: 1,2-Dihydroxyethane, 1,2-Ethanediol, Ethylene alcohol, Ethylene dihydrate.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
107-21-1	Ethylene glycol	>99.0	203-473-3

Hazard Symbols: XN
Risk Phrases: 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless. May cause eye and skin irritation. May cause respiratory and digestive tract irritation. May cause kidney damage. May cause central nervous system effects. May cause cardiac disturbances. This substance has caused adverse reproductive and fetal effects in animals. Hygroscopic. **Warning!** Harmful or fatal if swallowed.
Target Organs: Kidneys, heart, central nervous system.

Potential Health Effects

Eye: May cause moderate eye irritation.
Skin: May cause skin irritation. Low hazard for usual industrial handling.
Ingestion: May cause nausea and vomiting. Toxicity follows 3-stage progression. (1) involves central nervous system effects including paralysis of eye muscles, convulsions, and coma. Metabolic acidosis and cerebral swelling may also occur. (2) involves cardiopulmonary system with symptoms of hypertension, rapid heart beat, and possible cardiac failure. (3) involves severe kidney abnormalities including possible renal failure.
Inhalation: May cause respiratory tract irritation. Heated or misted substance may cause

headache, irregular eye movements, and possible coma.
Chronic: May cause kidney injury.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.
Skin: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Notes to Physician: Ethanol may inhibit methanol metabolism.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Water or foam may cause frothing. Use agent most appropriate to extinguish fire.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ethylene glycol	C 100 mg/m3 (aerosol)	no established RELs - see Appendix D	none listed

OSHA Vacated PELs: Ethylene glycol: C 50 ppm; C 125 mg/m3

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: odorless
pH: Not available.
Vapor Pressure: .05 mm Hg @ 20C
Vapor Density: 2.1 (air=1)
Evaporation Rate: Not available.
Viscosity: 21cP @ 20 deg C
Boiling Point: 195 deg C @ 760.00mm Hg
Freezing/Melting Point:-13 deg C
Autoignition Temperature: 410 deg C (770.00 deg F)
Flash Point: 111 deg C (231.80 deg F)
Decomposition Temperature: Not available.
NFPA Rating: (estimated) Health: 1; Flammability: 1; Reactivity: 0
Explosion Limits, Lower:3.20 vol %
Upper: 15.30 vol %
Solubility: soluble in water
Specific Gravity/Density:1.1200g/cm3
Molecular Formula:C2H6O2
Molecular Weight:62.06

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, ignition sources, moisture, excess heat.

Incompatibilities with Other Materials: Chlorosulfonic acid, dimethyl terephthalate, oleum, phosphorus pentasulfide, silvered-copper wire, sodium hydroxide, sulfuric acid, titanium butoxide. Causes ignition at room temperature with chromium trioxide, potassium permanganate, and sodium peroxide. Causes ignition at 100C with ammonium dichromate, silver chlorate, sodium chloride, and uranyl nitrate.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 107-21-1: KW2975000
LD50/LC50:
CAS# 107-21-1:
Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, eye: 100 mg/1H Mild;
Draize test, rabbit, eye: 1440 mg/6H Moderate;
Oral, mouse: LD50 = 5500 mg/kg;
Oral, rat: LD50 = 4700 mg/kg;
Skin, rabbit: LD50 = 9530 uL/kg;
Carcinogenicity:
CAS# 107-21-1:
ACGIH: A4 - Not Classifiable as a Human Carcinogen (aerosol)
Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: No data available.
Other Studies: Please refer to RTECS KW2975000 for additional information.

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 41000 mg/L; 96 Hr.; Unspecified Bluegill/Sunfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified Goldfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified flea LC50 = 46300 mg/L; 48 Hr.; Unspecified ria: Phytobacterium phosphoreum: EC50 =620 mg/L; 30 minutes; Microtox test Goldfish LD50= >5000mg/L/24Hr Guppies LC50= 493,000ppm/7D Shrimp (salt water) LC50= >100ppm/48Hr
Environmental: On soil, substance may leach to groundwater and biodegrade rapidly. In water, substance readily biodegrades. In air, substance reacts with hydroxyl radicals (T1/2= 1 day). Substance is not expected to bioconcentrate in marine life.
Physical: No information available.
Other: Please refer to the Handbook of Envirnmental Fate and Exposure Data for additional information.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	No information available.				No information available.
Hazard Class:					
UN Number:					
Packing Group:					

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 107-21-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA

Section 302 (RQ)
CAS# 107-21-1: final RQ = 5000 pounds (2270 kg)
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 107-21-1: acute, chronic.
Section 313
This material contains Ethylene glycol (CAS# 107-21-1, 99 0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 107-21-1 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 107-21-1 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:

XN
Risk Phrases:
R 22 Harmful if swallowed.

Safety Phrases:

WGK (Water Danger/Protection)
CAS# 107-21-1: 0
Canada
CAS# 107-21-1 is listed on Canada's DSL List. CAS# 107-21-1 is listed on Canada's DSL List.
This product has a WHMIS classification of D2A.
CAS# 107-21-1 is listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 107-21-1: OEL-AUSTRALIA:TWA 60 mg/m3;STEL 120 mg/m3 OEL-BELGIU
M:STEL 50 ppm (127 mg/m3) OEL-DENMARK:STEL 50 ppm (130 mg/m3) OEL-DE
NMARK:TWA 10 mg/m3 OEL-FINLAND:TWA 10 mg/m3;STEL 20 mg/m3 OEL-FINLAN
D:TWA 50 ppm (125 mg/m3);STEL 75 ppm (190 mg/m3) OEL-FRANCE:STEL 50 p
pm (125 mg/m3) OEL-HUNGARY:STEL 50 mg/m3;Skin OEL-THE NETHERLANDS:TW
A 10 mg/m3 OEL-THE NETHERLANDS:TWA 50 ppm (125 mg/m3) OEL-RUSSIA:STE
L 5 mg/m3 OEL-SWEDEN:TWA 50 ppm (130 mg/m3);STEL 75 ppm (19 mg/m3) O
EL-SWITZERLAND:TWA 1 mg/m3 OEL-SWITZERLAND:TWA 50 ppm (125 mg/m3) OE
L-UNITED KINGDOM:TWA 10 mg/m3 OEL-UNITED KINGDOM:TWA 60 mg/m3;STEL 12
5 mg/m3 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL
IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 5/12/1999
Revision #2 Date: 8/02/2000
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.